

Remarks

The undersigned's Remarks are preceded by related comments of the Examiner, presented in small bold-faced type.

2 The abstract of the disclosure is objected to because; in line 3 of the Abstract the words "surfaceto" do not have a space between them. Correction is required. See MPEP § 608.01(b).

A replacement Abstract sheet is provided herewith.

Claim Objections

3. Dependent Claim 20 is objected to because of the following informalities: There is a period after the word "draft" on the second line of the claim. Appropriate correction is required.

Claim 20 has been amended in accordance with the Examiner's suggestion.

4. Dependent Claim 16 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear to the Examiner exactly what the meets and bounds are of the term "guaranteed" as disclosed in dependent Claim 16. Amendment and clarification are required.

The term "guaranteed" means that the draft angle on the driving side will not be smaller than the selected draft angle. Claim 16 has been amended to state this more explicitly and to make claim 16 dependent from claim 15.

5. Independent Claims 1, 26, 27, 28, 31, 34 and 35 and dependent Claims 2, 3, 4, 5, 6, 29, 32 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Weiss et al. U.S. Patent 5,189,781.

5.1 As regards independent Claims 1, 26, 27, 28, 31, 34 and 35 the Weiss et al. reference teaches,

A Computer Aided Manufacturing system (Col. 1 Lines 18-51), for designing a part (Figure 10), selecting a parting surface with a first side and a second side (Col. 3 Lines 40-53), a draft angle (Col. 12 Lines 6-8), where the sides meet on a parting surface (Figure 4), and there is a corner radius "convex corner" (Figure 9 and Col. 9 Lines 20-33).

The Examiner's rejection is respectfully traversed. Contrary to the Examiner's assertion, the Weiss reference does not anticipate any claim of the present application and appears to have only marginal relevance to the present application.

Claim 1 recites a computerized method of industrializing a designed part where the method includes (i) selecting a parting surface that divides the designed part into a first side and a second side, (ii) wherein the designed part comprises a functional specification; (iii) selecting a draft angle; and (iv) computing a change in the first side and the second side using the selected draft angle, wherein the functional specification is maintained and the first side and second side meet on the parting surface. As further explained below, Weiss does not disclose a computerized method that includes all of the elements recited by claim 1 in the manner recited by claim 1.

Weiss Does Not Disclose an Industrialization Technique

The claims of the present application are directed to "industrialization" of a part. As explained in the present application, "industrialization" of a part is a process whereby a designed part is altered to improve its manufacturability, but without changing its functional nature. For example, the present application discloses that surfaces may be "industrialized" by changing angles of parts to facilitate removal from molds. Other forms of industrialization may also be applied. Generally speaking, the technique claimed in the present application can be thought of as being directed to a final design stage.

In contrast to the design-oriented technique disclosed and claimed in the present application, Weiss is directed to the post-design issue of fabrication. More particularly, Weiss is understood as relating to rapid tool manufacturing and, though Weiss suggest that some industrializing techniques may be applied to a design prior to its fabrication using Weiss's tool fabrication technique (see, e.g., Weiss col. 12 lines 7-12), Weiss provides little disclosure of how industrialization is to be performed (other than a generalized description of some

industrialization concerns). Further, as will be further explained below, Weiss certainly does not disclose the present application's method of performing industrialization.

Weiss's fabrication technique is more specifically understood as a rapid tool manufacturing technique using solid free form fabrication such as stereolithography and thermal spray deposition. The present invention's "industrialization" method is quite different; rather than addressing the actual fabrication of a completed design, as Weiss does, the "industrialization" process claimed in the present application can be seen as a further refinement of the design stage undertaken prior to fabrication. Weiss's stereolithography and thermal spray deposition fabrication technique would necessarily begin with the design to be fabricated (perhaps even a design that was "industrialized" in accordance with some previously known technique, e.g., manually by a draftsman) and then proceeds to fabricate a tool (e.g., a mold) to produce what has been designed. This process is outside of the scope of the present invention.

In summary, while one applying the techniques of Weiss may recognize that the question of industrialization needs to be addressed (e.g., to ensure that draft angles are appropriate for manufacture), Weiss itself does not disclose the present application's method to update the geometry so that the draft angle is correct. This industrialization feature, i.e., the particulars of updating of a solid's geometry in such a way that draft angle are compliant with molding and dimensional constraints, is addressed by the present application and the present application's method for performing such an update is not taught or suggested by Weiss.

Weiss's failure to disclose the specific elements of claims of the present application is discussed in detail below.

Rejection under § 102 cannot be supported because Weiss's disclosure does not enable the inventions of the present application

Response to Office Action
U.S. Application No. 09/839,039
Docket No.: 5974-076

Claim 1 of the present application requires, inter alia, that a user select a parting surface dividing a part into a first and a second side and a draft angle and the claim further requires that these selections then be used in computing changes to the first and second side. Contrary to the Examiner's suggestion, these selections and the related computation, as recited by claim 1, are not disclosed in Weiss.

It is respectfully submitted that, at best, Weiss discloses parts of elements found in the claims of the present application, however, Weiss does not disclose a combination of these parts such that they have the functional relationship required by the claims of the present application. Because Weiss fails to functionally relate the elements in the manner recited by the claims of the present application, it cannot be said that Weiss discloses the inventions claimed in the present application. In summary, it is respectfully submitted that, in rejecting claim 1, what the examiner has done is to pick-and-choose disclosure from Weiss that lacks the functional interrelationship recited by the claims of the present application. This is not appropriate.

It is well settled that the Examiner, in rejecting the claims of the present application, must go further than merely finding individual elements of the claims of the present application in the prior art; the Examiner must also show that the prior art discloses the functional interrelationship of these elements as recited by the claims in a manner that enables the claim under examination. In short, a prior art reference does not support a rejection under § 102 if it merely recites some elements of claim without also providing for the functional interconnection of those elements to enable the claim under examination. See MPEP § 2121.01:

The disclosure in an assertedly anticipating reference must provide an enabling disclosure of the desired subject matter; mere naming or description of the subject matter is insufficient, if it cannot be produced without undue experimentation. *Elan Pharm., Inc. v. Mayo Foundation for Medical and Educational Research*, 346 F.3d 1051, 1054, 68 USPQ2d 1373, 1376 (Fed. Cir. 2003).

Simply put, enabling disclosure has not been cited against the claims of the present application and Weiss does not appear to provide such disclosure. For example, consider the Examiner's reliance on Weiss at col. 3, lines 40-53 as relevant to "selecting a parting surface with a first side and a second side" and to Weiss at col. 12 lines 6-8 for the selection of "a draft angle." While col. 3, lines 40-53 of Weiss does discuss a mold having two parts, the cited text does not suggest a "selection" of a parting surface. Though the referenced section of Weiss does allow one to infer that a parting surface does exist, the "selection" aspect, which is lacking from the referenced text, has a functional relationship to other claim elements and, accordingly, cannot be ignored. Similarly, while col. 12 lines 6-8 of Weiss discloses that a draft angle is relevant to ejectability of a part from a mold, here again there is no suggestion of a "selection" of a draft angle and, again, because the "selection" of the angle is functionally related to other claim elements, the "selection" cannot be ignored. More particularly, the "selection" is clearly relevant to the claim element of "computing a change in the first side and the second side using the selected draft angle, wherein the functional specification is maintained and the first side and second side meet on the parting surface." Whether or not Weiss discloses parting surfaces or draft angles, it is clear that Weiss does not disclose selection of such surfaces and angles to enable "computing a change in the first side and the second side using the selected draft angle, wherein the functional specification is maintained and the first side and second side meet on the parting surface." Accordingly, the Examiner's rejection under § 102 is not supported.

Rejection under § 102 cannot be supported because the Examiner has not shown all elements of the claims

It is further noted that claim 1 recites "computing a change in the first side and the second side using the selected draft angle, wherein the functional specification is maintained and the first side and second side meet on the parting surface" the Examiner, in his comments, does not even suggest that this element can be found in Weiss. It is well settled that to support a rejection under

Response to Office Action
U.S. Application No. 09/839,039
Docket No.: 5974-076

§ 102, the Examiner must show all elements recited in the claim under examination. This has not been done.

For at least the separate and independent reasons that (i) the Examiner has not shown that Weiss enables the claims of the present invention and (ii) the Examiner has not suggested that Weiss discloses all elements of claim 1, the Examiner's rejection of claim 1 is improper. It is respectfully requested that the Examiner withdraw the rejection and allow the claims.

Claims 2-25 depend, directly or indirectly, on claim 1 and are patentable over Weiss for at least the reasons stated with respect to claim 1.

Claims 26, 27, 28, 31, 34 and 35 were rejected by the Examiner for the same reason as claim 1. Each of these claims include at least some limitations analogous to those of claim 1 and which, as explained above with respect to claim 1, are not found in Weiss and/or the combination of which are not enabled by Weiss. Accordingly, these claims are allowable for at least the reasons stated with respect to claim 1.

Claims 29-30 depend from claim 28, claims 32-33 depend from claim 31, and claims 36-37 depend from claim 35. These claims are patentable over Weiss for at least the reasons stated with respect to the depended-from claims.

6. Independent Claims 1, 26, 27, 28, 31, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Sebastian U.S. Patent 5,552,995.

6.1 As regards independent Claims 1, 26, 27, 28, 31, 34 and 35 the Sebastian reference teaches;

A Computer Aided Manufacturing system (Figures 2 & 3), for designing a part (Col. 3 Lines 50-67, Col. 4 Lines 1-6, Col. 5 Lines 9-19), selecting a parting surface with a first side and a second side (Figures 2A and 2B), a draft angle (Col. 11 Lines 32-49), where the sides meet on a parting surface (Figure 8, the Ultra sonic weld is where the parting surfaces meet).

Sebastian, like Weiss, fails to teach or suggest the inventions recited by the claims of the present application.

Claim 1 recites, among other things, a method of industrialization that includes “computing a change in the first side and the second side using the selected draft angle, wherein the functional specification is maintained and the first side and second side meet on the parting surface.” The Examiner, in his comments, has not even suggested that this element of claim 1 can be found in Sebastian. As explained above, to support a rejection under § 102, all elements of the claim under examination must be shown. The Examiner has not met his burden to do so and it is respectfully submitted that a rejection under § 102 in light of Sebastian is not supported.

Further with regard to the “selecting” of a parting surface, the undersigned fails to see how either Fig. 2A or 2B disclose selection of a parting surface. Fig. 2A is merely a generic box diagram showing that the computer system includes an input device coupled to a CPU, but does not in any way suggest the selecting of a parting surface, and Fig. 2B discloses a data structure. If the Examiner maintains the position that this is, indeed, the disclosure of “selecting” a parting surface, then it is requested that the Examiner explain how this can be. It is respectfully submitted that Sebastian fails to disclose “selecting” in the matter recited by claim 1 and for this additional, separate and independent reason, rejection under § 102 is not supported.

Similarly, while col. 11 lines 32-49 do discuss draft angles, the cited text does not refer to “selecting” of those angles and certainly does not refer to such selected angles, together with the selected parting surface, being used for computation in the matter recited by claim 1. Here, again, the fact that the cited art does not disclose “selecting” a draft angle for use in a computation as recited by claim 1 provides an additional, separate, and independent reason why rejection under § 102 is not supported.

For the reasons stated above, and for substantially the same reasons as further detailed with respect to the Examiner's rejection in light of Weiss, the rejection of claims 1, 26, 27, 28, 31, 34, and 35, and of their dependent claims, in light of Sebastian is not supported. It is respectfully requested that the Examiner withdraw his rejections of these claims.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Independent Claims 1, 26, 27, 28, 31, 34 and 35 and dependent Claims 2, 3, 4, 5, 6, 29, 32 and 36 are rejected under 35 U.S.C. 102(e) as being anticipated by Liou et al. U.S. Patent 6,484,063.

7.1 As regards independent Claims 1, 26, 27, 28, 31, 34 and 35 the Liou et al. reference teaches,

A Computer Aided Manufacturing system (Figure 2), for designing a part (Figure 4 Items 334, 340 & 346), selecting a parting surface with a first side and a second side (Figure 4 Items 342 & 348), a draft angle (Figure 3 Items 244, 246 & 247, Col. 3 Lines 7-15), where the sides meet on a parting surface (Figure 3 Items 248 & 260), and there is a corner radius "sharp edge" (Figure 3 Items 256 & 258).

Generally speaking, Liou is understood as relating to a system and method of inspecting a selected part design from an inventory of computer aided part designs for die compliance as to geometric characteristics of the part design with respect to die lock, draft, and sharp edge. Liou is understood as producing a diagnosis about die compliancy of an existing part; however, Liou is not understood as providing for modification of the geometry of the existing part. As an example, Liou's draft evaluation process is understood as indicating to the user if the surface has sufficient draft or not but the part itself is not modified. In contrast, the present invention may be used to modify the geometry of a part according to molding and dimensional constraints. According to claim 1, based on selected elements (parting surface, draft angle) the sides of the designed parts

Response to Office Action
U.S. Application No. 09/839,039
Docket No.: 5974-076

are modified but the functional specifications are maintained, and the system ensures that the sides still meet at the parting surface.

Liou, like Weiss, fails to teach or suggest the inventions recited by the claims of the present application.

Claim 1 recites, among other things, a method of industrialization that includes “computing a change in the first side and the second side using the selected draft angle, wherein the functional specification is maintained and the first side and second side meet on the parting surface.” The Examiner, in his comments, has not even suggested that this element of claim 1 can be found in Liou. As explained above, to support a rejection under § 102, all elements of the claim under examination must be shown. The Examiner has not met his burden to do so and it is respectfully submitted that a rejection under § 102 in light of Liou is not supported.

It is further noted that Liou does not include an enabling disclosure of claim 1 but rather, as with Weiss, what Liou discloses is, at best, a number of individual claim elements lacking the functional interconnection necessary to enable to the inventions claimed in the present application. For this additional reason, rejection of claim 1 under § 102 is not supported.

For the reasons stated above, and for substantially the same reasons as further detailed with respect to the Examiner’s rejection in light of Weiss, the rejection of claims 1, 26, 27, 28, 31, 34, and 35 in light of Sebastian is not supported.

Allowable Subject Matter

8. Claims 7-25, 30, 33 and 37 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The Examiner notes that dependent Claim 16 is also being rejected under 35 U.S.C. 112 2nd paragraph, see section 4 above.

The undersigned thanks the Examiner for the indication of allowable subject matter. However, as it is believed that all rejected claims are allowable, the claims which were indicated

Response to Office Action
U.S. Application No. 09/839,039
Docket No.: 5974-076

as allowable have been left in their present form. It is noted that, in order to speed allowance of these claims, the undersigned may, at a future time, redraft the claims in independent form.

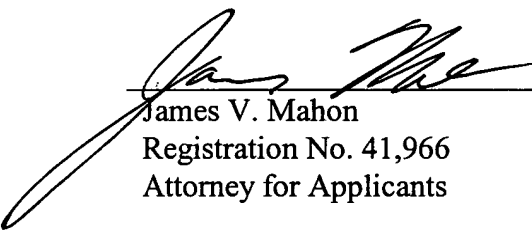
Conclusion

Claims 16 and 20 have been amended. Claims 1-37 are now pending and believed to be in condition for allowance. Applicants respectfully request that all pending claims be allowed.

Please apply any credits or excess charges to our deposit account number 50-0521.

Respectfully submitted,

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